

## **Wetland Mitigation Monitoring for FAP 331 (IL 13) - 2001**

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### **Introduction**

Road construction for FAP 331 (IL 13) resulted in impacts requiring 9.15 acres of wetland mitigation. A compensation plan was prepared which called for floodplain forest, emergent, and shrub scrub (changed to cypress gum swamp) wetland creation, located in a 20 acre abandoned agricultural field in western Saline Co. Reexamination of the original report (Morris et al., 1994) shows that the field contained approximately 2.02 acres of wetland prior to alteration of the site. Approximately 2.5 acres (the area originally planned for emergent and cypress-gum wetlands) were excavated to a depth of 6 to 12 in. A shallow berm, including water control structure, was established at the southeastern corner of the site in order to retard sheetflow and hold more surface water on-site. The wetland creation site was completed in 1997. Vegetation planting was carried out in 1997 and 1998.

In 2001, field monitoring was conducted on 4 September. This report details results of the 2001 monitoring. Project goals, objectives and performance criteria are included, as are monitoring methods, monitoring results, summary information and recommendations. A wetland mitigation site assessment (Morris et al., 1994) and hydrogeologic characterization report (Rorick and Hilchen, 1995) were prepared by the Illinois Natural History Survey and Illinois State Geological Survey. A wetland mitigation plan was prepared by Smith (1995). In September 2001, a close out meeting was held on site in which the U. S. Army Corps of Engineers indicated that, if certain conditions were met, they were prepared to accept the site as mitigation for wetland impacts resulting from IL 13 construction.

### **Project Goals, Objectives and Performance Criteria**

Proposed goals and objectives are based on information contained in the original IDOT project request (Brooks, 1999) and the project Special Provisions (IDOT, no date). Performance criteria are based on those specified in the U. S. C. O. E. Wetland Delineation Manual (Environmental Laboratory, 1987), and Guidelines for Developing Mitigation Proposals (USACOE, 1993). Each goal should be attained by the end of the five year monitoring period. Project goals, objectives and performance criteria are listed below.

#### **Created Wetland Site**

**Project goal 1:** The created wetland site should be determined to be jurisdictional by current federal standards.

**Objective:** The created wetland should compensate for losses of 4.7 acres of forested wetland, emergent wetland, and shrub scrub wetland. A total of 9.15 acres of wetland compensation is required.

**Performance Criteria:** The entire created wetland should satisfy the three criteria of the federal wetland definition: hydrophytic vegetation, hydric soils and wetland hydrology.

- A. Predominance of hydrophytic vegetation - More than 50% of the dominant plant species must be hydrophytic.
- B. Presence of hydric soils - Hydric soil characteristics must be present, or conditions favorable to the formation of hydric soil must persist at the site.
- C. Presence of wetland hydrology - the created wetland must be inundated at an average depth of less than 2 m (6.6 ft) or have soils saturated to the surface for at least 12.5 % of the growing season.

**Project goal 2:** The created wetland should meet minimum standards as to floristic composition.

**Objective:** The created wetland should compensate in-kind for loss of forested, shrub scrub, and emergent wetlands. The wetland compensation should be composed of vegetation characteristic of forested, shrub scrub, and emergent wetlands.

**Performance Criteria:** Planted herbaceous and woody species should have good survivorship and health over the five year monitoring period. At least 50% of the plant species present should be non-weedy, native, perennial species. None of the three most dominant species in any stratum should be nonnative, or weedy species.

## Methods

Monitoring will be performed on the created wetland site. Illinois Natural History Survey personnel monitored the site in 1999, 2000 and 2001 and will continue yearly monitoring through 2003 (five years) or until the Illinois Department of Transportation requests that monitoring cease. The Illinois State Geological Survey has been tasked to monitor hydrology. Monitoring reports on the status of the wetland creation site will be submitted annually. The likelihood of meeting the proposed goals and performance criteria will be addressed. If evidence is discovered, indicating that the goals/performance criteria will not be met by the end of the five year monitoring period, written management recommendations will be submitted to IDOT in an effort to correct the problems.

### Project Goal 1

Created wetland areas will be measured in the field, plotted on aerial photographs, and acreages determined with digital planimeter.

A. Hydrophytic Vegetation - Within the 2.5 acre excavated area, where planting was carried out, species composition (relative frequency, relative dominance, and Importance Value) will be determined annually through quantitative vegetation sampling of permanent plots. Five parallel transects were established at 15.2 m (50 ft) intervals. Sampling points were established at 15.2 m (50 ft) intervals on each transect. At each sampling point, vegetation was tallied by species and percent cover in 24, 1 m<sup>2</sup> quadrats. Beginning in 2000, with planted trees and shrubs now tall enough to be seen in the dense herbaceous vegetation,

woody species composition within the excavated area will be determined through quantitative sampling of permanent plots. Four transects were established at 30.5 m (100 ft) intervals. Sampling points were established at 30.5 m (100 ft) intervals on each transect. At each sampling point, number of shrub layer individuals by species were recorded in 9, 100 m<sup>2</sup> plots. For the remainder of the site, using visual estimation, the dominant species of vegetation in each stratum are determined. Dominance is based on Importance Value, a numerical average of species' relative frequency, density and aerial coverage (or basal area) (Cox 1985). In each stratum dominant species include, starting with the most dominant, those species whose Importance Values, when summed in descending order, immediately exceed 50%, as well as any additional species whose Importance Values are 20% or greater (Federal Interagency Committee for Wetland Delineation, 1989). Dominant species are assigned wetland indicator status ratings (Reed, 1988). Any plant rated facultative or wetter (FAC, FAC+, FACW-, FACW, FACW+ or OBL) is considered hydrophytic. Hydrophytic vegetation is determined to be present if greater than 50% of the dominant species are hydrophytic (Environmental Laboratory 1987).

B. Hydric Soils - Soil cores collected from the mitigation site are examined for the presence of redoximorphic features (Environmental Laboratory 1987). This site includes 2.5 acres of shallow ( $\leq 1$  ft) excavation, and a shallow berm erected in the vicinity of the southeast corner of the site. The excavated area and the area near the berm are expected to display changing soil characteristics as those portions of the site adjust to new hydrologic conditions. The western portion of the site is not expected to experience soil conditions that change over time.

C. Wetland Hydrology - The Illinois State Geological Survey has been tasked to monitor this site. Six stage gauges have been installed, and the number of monitoring wells has been increased from 25 to 32 (Ketterling et al., 2001). Information provided by ISGS concerning hydrology of the site will be incorporated into this report. In addition, visual inspection of the site for field indicators of wetland hydrology, such as landscape position, inundation or surface saturation or wetland drainage and debris patterns, will be used to determine the presence of wetland hydrology (Environmental Laboratory 1987).

## **Project Goal 2**

A. Survival of planted species – At this site, complications prohibit the determination of percent survival of planted species. For both woody and herbaceous species, there have been substitutions and omissions of species listed in the planting plan and the number of individuals per species has been altered and is not known. In addition, the woody species have been planted in different areas than what is specified in the mitigation plan and apparently have been placed randomly, with no stakes to mark planting locations. The planting boxes for herbaceous species had been removed before the first year's monitoring fieldwork began, and species have begun to spread beyond their planting cells. Therefore, in 1999, for woody species, the areas planted were determined and lists of observed live, planted species prepared. In following years, quantitative sampling of these areas will be used to estimate numbers of live, planted woody species. In 1999, while the outlines of the recently removed planting boxes (pods) were still apparent, aerial extent, percent cover and a qualitative success rating were determined for each cell of herbaceous planting. In subsequent years, as the various species spread or decline, it will be increasingly difficult to assess each planted herbaceous species in relation to its original planting cell. Therefore, for each of the nine original planted species, aerial extent, percent cover and a qualitative success (population health) rating will be determined and related to values given in the 1999 sampling season.

- B. Vegetation - Dominant plant species in each stratum in the emergent wetland and wet meadow (oak-hickory wetland) will be determined annually by quantitative sampling. Dominant plant species for the other created wetland communities within the site will be determined by visual estimation. Lists of dominant species will be examined in an attempt to ensure that, in the created wetlands, none of the three most dominant species are weedy or non-native. A species list will be prepared annually for each community in order to ensure that at least 50% of the plant species are non-weedy, native and perennial. A Floristic Quality Index will be computed annually for each plant community.

## Faunal Surveys

In addition to stated performance criteria, INHS personnel will conduct annual surveys of herpetofauna and avifauna.

### Herpetofauna

The compensation site was visited by INHS personnel on 1 March, 27 April, 7 and 8 June, 18 and 20 July, and 28 September 2001. The main objective was to conduct visual encounter surveys, and limited dipnetting, throughout the site and compile a species list. Call surveys were performed on a limited basis. Drift fences were established along the east ditch and in the south forest. Emphasis was placed on amphibian species and evidence of breeding and recruitment of these species. Fishless, ephemeral wetlands are among the rarest habitat types in Illinois and it is these wetlands that many native amphibian species utilize for reproduction. We surveyed the entire property, but special attention was directed to the emergent wetland, a ditch/pool at the east edge of the property, a forested pond in the eastern portion of the site, and the forested area at the southern boundary. A list was compiled of all the amphibians and reptiles encountered at the wetland compensation site to date.

### Avifauna

We established four census points 150 m apart and at least 50 m from the edge of the property. Because of the complexity of the habitat, all points encompass several habitat types (Table 7). We used standard avian point counts (Manley et al., 1993) to subsample the avifauna, recording all individuals heard or seen within a range of 50 m during ten minute count periods. These timed counts provide measures of the structure of bird communities (number of individuals and number of species) in the area.

## Results

**Project Goal 1:** The created wetland site should be determined to be jurisdictional by current federal standards.

Additional soil investigations in 2001 confirm our 2000 estimate of wetland acreage. This site originally supported 0.82 ha (2.02 acres) of wetland. Shallow excavation and berm construction have resulted in creation of 4.45 ha (11.0 acres) of additional wetland (about 6.98 acres of nonwetland remain) (Plocher et al. 2000). All wetland areas are underlain by Bonnie silt loam, poorly drained, which is a hydric soil (Appendix 1). Within the excavated area, a 0.49 ha (1.2 acre) emergent wetland now exists, surrounded by a 0.77 ha (1.9 acre) wet meadow (oak-hickory wetland). The emergent wetland is dominated by *Ludwigia palustris* (OBL), *Juncus acuminatus* (OBL), *Panicum rigidulum* (FACW), *Scirpus*

*atrovirens* (OBL) and *Paspalum laeve* (FACW-). The wet meadow is dominated by *Juncus interior* (FAC+), *Pycnanthemum tenuifolium* (FAC), *Eupatorium serotinum* (FAC+), *Solidago canadensis* (FACU), and *Fraxinus pennsylvanica* (FACW). The hydrophytic vegetation criterion is thereby satisfied for both of these sites. The construction of a shallow berm at the southeast border of the site has impeded surface flow and resulted in the creation of approximately 1.98 ha (4.9 acres) of shrub scrub wetland (young forest) in the eastern portion of the site. This community is dominated by *Acer rubrum* (FAC), and *Fraxinus pennsylvanica* (FACW) in both sapling and shrub layers, thereby satisfying the hydrophytic vegetation criterion (Appendix 1).

In all created wetland areas, field indicators of wetland hydrology were observed. These included wetland drainage patterns, driftlines, water stained leaves and low, level topography. In addition, the Illinois State Geological Survey (ISGS) established four monitoring wells and three stage gauges within the created wetland sites. Based on well and stage gauge data, these sites meet the wetland hydrology criterion (saturation or inundation for at least 12.5% of the growing season) (fig. 1, 2).

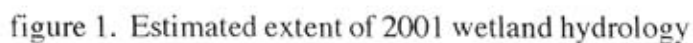
In 2001, the ISGS has again added wells and revised their estimate of acreage supporting wetland hydrology. Currently the ISGS estimates 14.4 acres of created wetlands onsite (fig. 1, 2), compared to an estimated 8.2 acres in 2000 (Ketterling et al., 2001; Ketterling et al. 2000). Our estimate remains at 11.0 acres. We do not feel that major changes in site hydrology have occurred since last year. The ISGS states that their revised estimate may be influenced by a wetter than normal winter 2000-2001 (Ketterling et al. 2001). We note that the 3.4 acres in the northwest corner of the site where ISGS and INHS are not in agreement do not now, and did not at any time in the last seven years, support hydrophytic vegetation. This area continues to be dominated by *Acer rubrum* (FAC), *Rubus pensylvanicus* (FAC-), *Solidago canadensis* (FACU), and *Festuca pratensis* (FACU-). However, both INHS and ISGS now concur that greater than the required 9.15 acres of created wetland exist on site.

**Project goal 2:** The created wetland should meet minimum standards as to floristic composition.

#### A. Survival of Planted Species

**Woody Species** - The wetland mitigation plan called for creation of 7.3 acres of forested wetland and 1.4 acres of shrub scrub wetland. The area designated for forested wetland was not planted, and 0.77 ha (1.9 acres) of forested (oak-hickory) wetland was planted in the area designated for shrub scrub. Cypress – gum wetland has been substituted for shrub scrub, and 0.49 ha (1.2 acres) of this planting type has been superimposed over the emergent wetland planting. Exactly what species were planted, and in what numbers is unknown. In the oak-hickory wetland, the following planted species were observed: *Quercus palustris*, *Quercus lyrata*, *Quercus bicolor*, *Liquidambar styraciflua*, *Nyssa sylvatica*, *Carya illinoensis*, *Carya* sp., *Acer rubrum*, *Fraxinus pennsylvanica*, *Betula nigra*, *Carpinus caroliniana*, *Crateagus phaenopyrum*, and *Cornus obliqua*. In the emergent wetland the following planted woody species were observed: *Taxodium distichum*, *Acer rubrum*, *Fraxinus pennsylvanica*, *Quercus lyrata*, *Betula nigra*, *Cephalanthus occidentalis*, *Crateagus phaenopyrum*, *Itea virginica*, and *Callicarpa dichotoma*. Both sites support abundant natural regeneration of *Acer rubrum*, *Fraxinus pennsylvanica*, *Betula nigra*, and *Cornus obliqua*, which makes accurate assessment of planted stock impossible for these species.

**Estimated Areal Extent of 2001 Wetland Hydrology**  
based on data collected between September 1, 2000 and September 1, 2001  
map based on unrectified aerial photography from IDOT (1998, NAPP 22-441)



**Saline County Wetland Compensation Site**  
**September 1, 2000 to September 1, 2001**

**Depth to Water**  
**in Wells used to Determine Areas Satisfying Wetland Hydrology Criteria**  
**in the Eastern Portion of the Site**

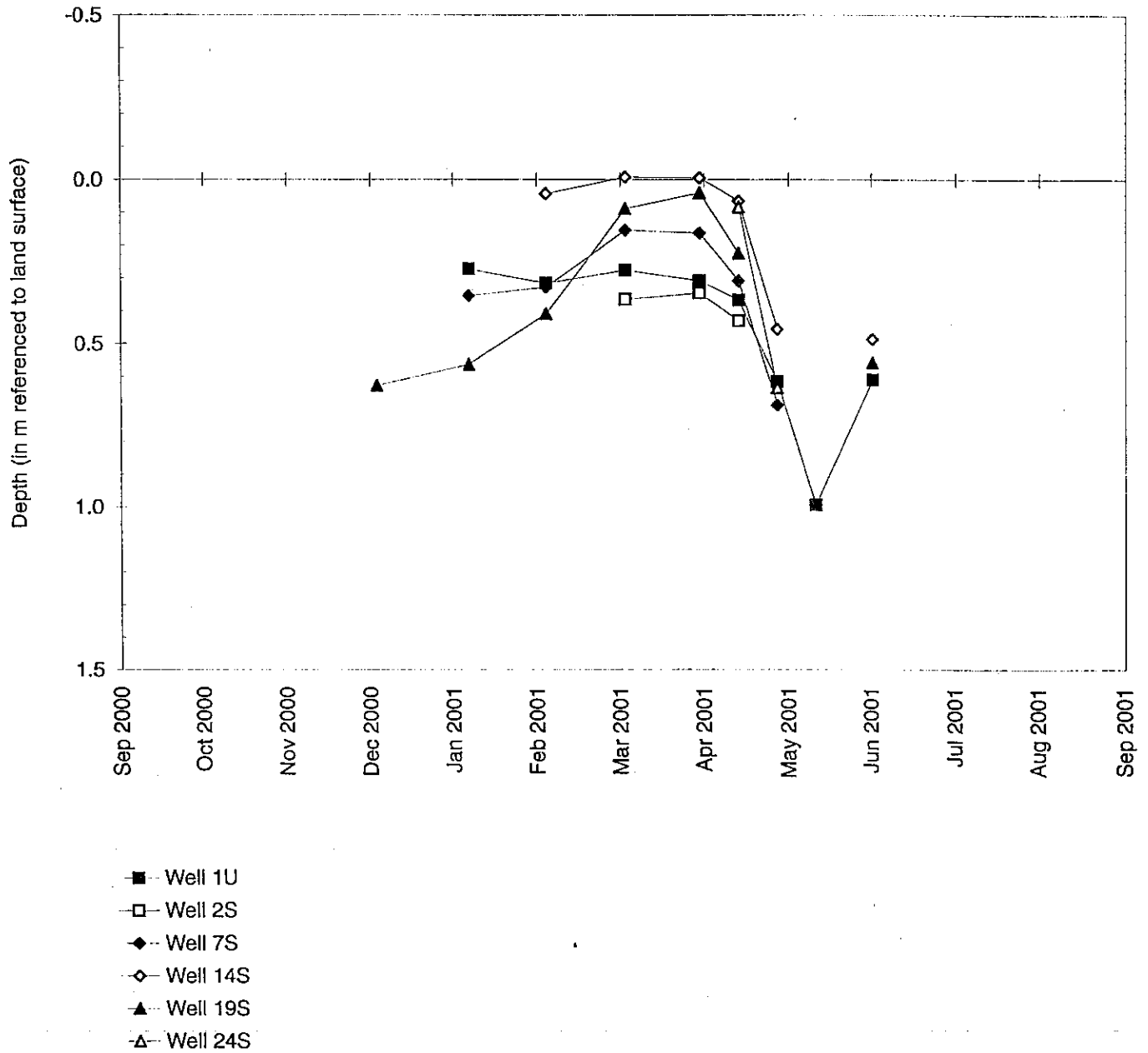


figure 2. Water level elevations used for wetland hydrology determinations

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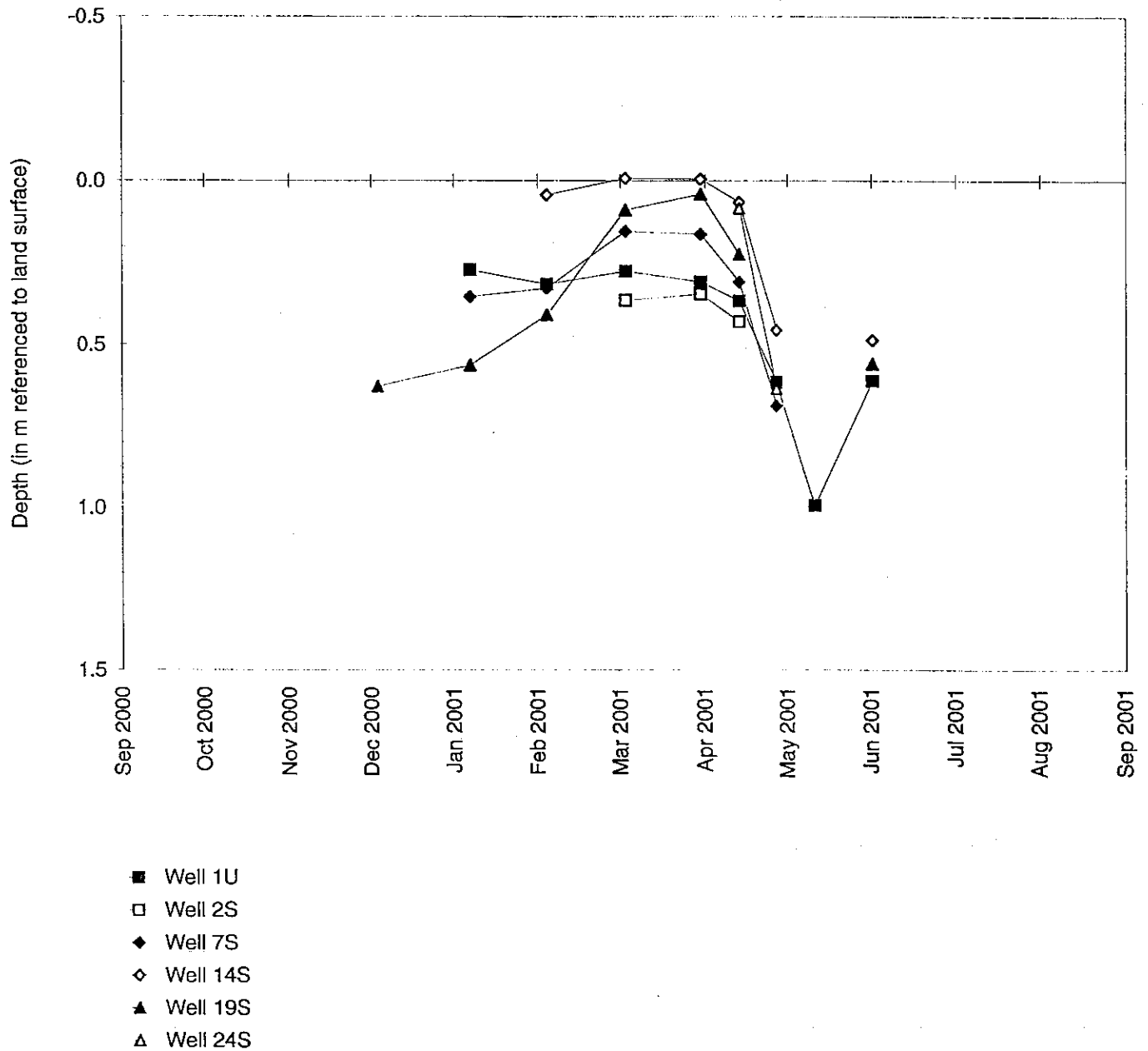


figure 2. Water level elevations used for wetland hydrology determinations

In the 1.9 acre oak-hickory wetland (wet meadow) the shrub layer is dominated by *Fraxinus pennsylvanica*, *Cornus obliqua*, *Acer rubrum* and *Betula nigra*. Total shrub layer density is 834 indiv./acre, a slight decrease from 923 indiv./acre in 2000. Planted species (including an estimate of planted versus natural *Acer*, *Fraxinus*, *Betula* and *Cornus*) occur at a density of 376/acre or 714 total. Plantings were supposed to occur at a rate of 500 per acre for 9.5 acres or 4750 stems total (Table 1, Plocher et al. 2000).

In the 1.2 acre emergent wetland, the shrub layer is dominated by *Salix nigra* and *Acer rubrum*. Total shrub layer density is 931 indiv./acre, compared to 1123 indiv./acre in 2000. Planted species (including an estimate of planted versus natural *Fraxinus* and *Acer*) occur at a density of 162/acre or 194 total. Plantings were supposed to occur at a rate of 1000 indiv./acre for 1.4 acres or 1400 stems total (Table 2, Plocher et al. 2000).

Herbaceous species – Within the excavated portion of the site, a 0.49 ha (1.2 acre) emergent wetland has become established, thus exceeding the planned 0.84 acre. In the emergent wetland area, herbaceous species were planted in five, 20 ft X 50 ft, and one 20 ft X 30 ft, pods, each consisting of a number of (two to eight) smaller cells of varying sizes. The corner stakes of the planting cells had been removed prior to sampling, and the planted herbaceous species had begun to spread beyond their cells.

We identified nine planted herbaceous species: *Scirpus americanus*, *Scirpus validus*, *Scirpus atrovirens*, *Sparganium eurycarpum*, *Sagittaria latifolia*, *Alisma plantago aquatica*, *Iris shrevii*, *Pontederia cordata*, and *Eleocharis erythropoda*. *Eleocharis erythropoda* appears to have been substituted for *E. acicularis*, and *P. cordata* for *Sagittaria rigida*. *Sagittaria latifolia* and *Scirpus atrovirens* are naturally occurring and abundant onsite. *Scirpus cyperinus*, *Asclepias incarnata*, *Carex annectans* (similar to *C. vulpinoidea*), and *Ludwigia polycarpa* are included on the planting list but do not appear to have been planted. They are, however, also naturally occurring and abundant onsite. In general, planted herbaceous species have increased in aerial coverage from 2000 levels (0.21 acre from 0.19 acre) and are only slightly reduced from the 0.23 acre coverage in 1999. Percent ground cover has increased from 72% to 82% since 1999. *Scirpus validus*, *Scirpus americanus*, and *Eleocharis erythropoda* have increased, and *Sparganium eurycarpum* has greatly increased. *Pontederia cordata* and *Scirpus atrovirens* have decreased, although naturally occurring *Scirpus atrovirens* is increasing. *Alisma plantago aquatica* was not located, although it may well have been visible earlier in the growing season. *Sagittaria latifolia* has greatly decreased, in both planted and naturally occurring colonies. *Iris shrevii* has increased since last year and is similar in coverage to 1999 levels. All of the planted herbaceous species except *Sagittaria* and possibly *Alisma* continue to do well and are represented by large, healthy stands. The 0.21 acre aerial coverage is considerably greater than the original 0.13 acre of planting cells (Table 3, Plocher et al. 2000).

Table 1. Shrub layer species composition of Wet Meadow (Site 2). Freq., Rel. Freq., Density (indiv./100 m<sup>2</sup>), Rel. Density, Importance Value (%), N=5.

Species	Freq.	Rel. Freq.	Density	Rel. Dens.	I.V.
<i>Fraxinus pennsylvanica</i>	0.800	0.1053	5.200	0.2524	17.89
<i>Cornus obliqua</i>	1.000	0.1316	2.200	0.1068	11.92
<i>Acer rubrum</i>	0.600	0.0789	3.000	0.1456	11.23
<i>Betula nigra</i>	0.400	0.0526	2.200	0.1068	7.97
<i>Quercus palustris</i>	0.600	0.0789	1.600	0.0777	7.83
<i>Carya illinoensis</i>	0.800	0.1053	1.000	0.0485	7.69
<i>Ulmus americana</i>	0.600	0.0789	1.400	0.0680	7.34
<i>Platanus occidentalis</i>	0.600	0.0789	1.400	0.0680	7.34
* <i>Liquidambar styraciflua</i>	0.800	0.1053	0.800	0.0388	7.20
* <i>Crateagus phaenopyrum</i>	0.400	0.0526	0.600	0.0291	4.09
* <i>Quercus lyrata</i>	0.400	0.0526	0.600	0.0291	4.09
* <i>Nyssa sylvatica</i>	0.200	0.0263	0.200	0.0097	1.80
* <i>Quercus bicolor</i>	0.200	0.0263	0.200	0.0097	1.80
<i>Catalpa speciosa</i>	0.200	0.0263	0.200	0.0097	1.80
Total	7.600	0.9998	20.600	0.9999	99.99

Shrub density – 834.0/acre

\* = planted species

Planted species density – 375.7/acre

Table 2. Shrub layer species composition of Emergent Wetland (Site 1). Freq., Rel. Freq., Density (indiv./100 m<sup>2</sup>), Rel. Density, Importance Value (%), N=4.

Species	Freq.	Rel. Freq.	Density	Rel. Dens.	I.V.
<i>Salix nigra</i>	1.000	0.2857	11.750	0.5109	39.83
<i>Acer rubrum</i>	0.500	0.1429	3.750	0.1630	15.30
* <i>Taxodium distichum</i>	0.500	0.1429	3.000	0.1304	13.67
<i>Ulmus americana</i>	0.500	0.1429	2.250	0.0978	12.03
<i>Fraxinus pennsylvanica</i>	0.500	0.1429	0.750	0.0326	8.78
* <i>Quercus lyrata</i>	0.250	0.0714	1.000	0.0435	5.74
<i>Populus deltoides</i>	0.250	0.0714	0.500	0.0217	4.65
Total	3.500	1.0001	23.000	0.9999	100.00

Shrub density – 931.2/acre

\* = planted species

Planted species density – 161.9/acre

Table 3. Status of Planting Pods-2001. cell, species, aerial extent (ft<sup>2</sup>), percent cover, rating

Cell	Species	Aerial Extent (ft <sup>2</sup> )	Percent Cover	Qualitative Rating
1-A	** <i>Eleocharis erythropoda</i>	216	100	very good and spreading
1-B	** <i>Scirpus americanus</i>	1155	100	very good and spreading
1-C	* <i>Sagittaria latifolia</i>	0	0	very poor
1-D	<i>Scirpus validus</i>	100	75	good
2-A	** <i>Sparganium eurycarpum</i>	345	100	very good and spreading
2-B	<i>Iris shrevii</i>	81	75	fair
2-C	** <i>Scirpus atrovirens</i>	120	100	very good and spreading
2-D	* <i>Sagittaria latifolia</i>	0	0	very poor
2-E	* <i>Scirpus validus</i>	110	100	good
2-F	<i>Scirpus americanus</i>	210	80	very good
2-G	* <i>Alisma plantago aquatica</i>	0	0	very poor
3-A	* <i>Scirpus atrovirens</i>	48	60	good
3-B	<i>Iris shrevii</i>	130	60	fair
3-C	** <i>Sparganium eurycarpum</i>	992	75	very good and spreading
3-D	* <i>Scirpus americanus</i>	166	80	very good and spreading
3-E	* <i>Iris shrevii</i>	84	40	fair
3-F	* <i>Sagittaria latifolia</i>	0	0	very poor
3-G	* <i>Scirpus americanus</i>	90	60	good
4-A	** <i>Sparganium eurycarpum</i>	1073	80	very good and spreading
4-B	* <i>Scirpus atrovirens</i>	0	0	very poor
4-C	** <i>Scirpus validus</i>	1188	100	very good and spreading
4-D	* <i>Pontederia cordata</i>	42	75	very good and spreading
4-E	* <i>Sagittaria latifolia</i>	300	50	very good and spreading
4-F	* <i>Pontederia cordata</i>	84	75	very good
4-G	** <i>Iris shrevii</i>	99	50	fair
5-A	<i>Sparganium eurycarpum</i>	441	70	good
5-B	* <i>Sagittaria latifolia</i>	0	0	very poor
6-A	* <i>Sparganium eurycarpum</i>	0	0	very poor
6-B	* <i>Sagittaria latifolia</i>	70	50	fair but spreading
6-C	** <i>Pontederia cordata</i>	364	65	fair
6-D	* <i>Scirpus atrovirens</i>	0	0	very poor
6-E	** <i>Sparganium eurycarpum</i>	1470	90	very good and spreading
6-F	* <i>Scirpus atrovirens</i>	0	0	very poor
6-G	* <i>Pontederia cordata</i>	152	70	good
6-H	* <i>Sagittaria latifolia</i>	220	30	fair
Total		9350	Wt. Mn = 81.8	

\* - coverage decreased since 1999

\*\* - coverage increased since 1999

## B. Vegetation

Since 2000, in both the emergent and oak-hickory wetlands, woody species have decreased slightly in density but have increased in height and aerial cover. However, neither community yet supports a dominant shrub layer. Species diversity and Floristic Quality (Taft et al., 1997) have increased on the site overall, and all plant communities now have Floristic Quality Indices of 20.0 or greater.

The emergent wetland is dominated by *Ludwigia palustris*, *Juncus acuminatus*, *Panicum rigidulum*, *Scirpus atrovirens*, and *Paspalum laeve*. *Scirpus atrovirens*, *Phyla lanceolata* and *Paspalum laeve* have greatly increased since last year, while *Sagittaria latifolia*, *Pontederia cordata* and *Eleocharis obtusa* greatly decreased. The planted exotic *Callicarpa dichotoma* and the exotic *Phragmites communis* have increased in abundance, and the exotic *Typha angustifolia* is still present (Table 4, Appendix 1).

In the wet meadow (oak-hickory wetland) *Lespedeza cuneata*, *Panicum acuminatum*, *Andropogon virginicus* and *Lycopus americanus* greatly decreased, while *Fraxinus pennsylvanica* seedlings increased. Dominant species in 2001 were *Juncus interior*, *Pycnanthemum tenuifolium*, *Eupatorium serotinum*, *Solidago canadensis* and *Fraxinus pennsylvanica*. In 2001, the very uncommon *Rhexia virginica* (CC=10) appeared in this community (Table 5, Appendix 1).

Beyond the excavated area, the weedy *Festuca pratensis* and *Solidago canadensis* are still among the dominant species in the non-wet shrubland in the western portion of the site and the non-native *Eleagnus angustifolia* and *Rosa multiflora* are fairly abundant here. The wet shrubland in the eastern half of the site is still dominated by *Fraxinus pennsylvanica* and *Acer rubrum* in the shrub and sapling layers, while the understory remains sparse. The ditchbank community is dominated by *Ludwigia palustris* and *Phyla lanceolata* (Appendix 1).

Two of the plant communities continue to have dominant species that are weedy or exotic. *Solidago canadensis* and *Festuca pratensis* remain the two most dominant understory species in the shrubland, and *Eupatorium serotinum* is third most dominant species in the oak-hickory wetland. However, *Lespedeza cuneata* is much less abundant in this community and many dead individuals were observed. The *Phyla lanceolata* now dominant in the ditchbank community might be considered weedy, but this native species is typical of open wetlands. All of the plant communities showed increases in number of naturally occurring species and have less than 50% exotic or weedy species. All plant communities now have Floristic Quality Indices of 20.0 or greater. In the emergent wetland, Floristic Quality slightly decreased (26.3 to 25.7) and percent weedy/exotic increased from 14.8% to 17.9%. In the oak-hickory wetland, Floristic quality remained stable (26.7) and percent weedy/exotic decreased from 23.1% to 19.8%. Floristic quality increased from 16.8 to 20.0 in the shrubland and decreased in the ditch community (21.7 to 20.1). The wet shrubland increased markedly in both species diversity (22 to 45) and Floristic quality (12.0 to 20.0) (Appendix 1, Plocher et al. 2000). The State listed species, *Eryngium prostratum* (Endangered), has shown a fourfold increase in abundance (10.5 m<sup>2</sup> to 41.8 m<sup>2</sup>) in the emergent wetland and decreased to 1/3 of previous coverage (10.9 m<sup>2</sup> to 4.0 m<sup>2</sup>) in the ditchbank community.

Table 4. Understory species composition of Emergent Wetland (Site 1). Freq., Rel. Freq., Dominance (m<sup>2</sup>/m<sup>2</sup>), Rel. Dom., Importance Value (%), N=15.

Species	Freq.	Rel. Freq.	Dom.	Rel. Dom.	I.V.
<i>Ludwigia palustris</i>	0.8000	0.0952	0.2947	0.2233	15.93
<i>Juncus acuminatus</i>	0.6667	0.0794	0.1667	0.1263	10.28
<i>Panicum rigidulum</i>	0.5333	0.0635	0.1100	0.0833	7.34
<i>Scirpus atrovirens</i>	0.3333	0.0397	0.0833	0.0631	5.14
<i>Paspalum laeve</i>	0.5333	0.0635	0.0367	0.0278	4.56
<i>Phyla lanceolata</i>	0.2000	0.0238	0.0767	0.0581	4.10
<i>Eupatorium serotinum</i>	0.4667	0.0556	0.0333	0.0252	4.04
<i>Echinochloa muricata</i>	0.3333	0.0397	0.0487	0.0369	3.83
<i>Carex normalis</i>	0.2667	0.0317	0.0240	0.0182	2.49
<i>Eleocharis obtusa</i>	0.2667	0.0317	0.0187	0.0142	2.29
<i>Polygonum hydropiperoides</i>	0.2667	0.0317	0.0173	0.0131	2.24
* <i>Sparganium eurycarpum</i>	0.0667	0.0079	0.0467	0.0354	2.17
<i>Juncus interior</i>	0.1333	0.0159	0.0353	0.0267	2.13
<i>Salix nigra</i>	0.2000	0.0238	0.0247	0.0187	2.12
<i>Juncus marginatus</i>	0.2000	0.0238	0.0233	0.0176	2.07
<i>Hypericum muticum</i>	0.2000	0.0238	0.0207	0.0157	1.97
* <i>Scirpus americanus</i>	0.1333	0.0159	0.0300	0.0227	1.93
* <i>Scirpus validus</i>	0.0667	0.0079	0.0400	0.0303	1.91
<i>Acer rubrum</i>	0.2000	0.0238	0.0187	0.0142	1.90
<i>Lindernia dubia</i>	0.2667	0.0317	0.0067	0.0051	1.84
<i>Juncus brachycarpus</i>	0.2000	0.0238	0.0067	0.0051	1.45
<i>Lycopus americanus</i>	0.1333	0.0159	0.0160	0.0121	1.40
<i>Sagittaria latifolia</i>	0.1333	0.0159	0.0133	0.0101	1.30
<i>Ulmus americana</i>	0.1333	0.0159	0.0113	0.0086	1.23
<i>Acalypha rhomboidea</i>	0.1333	0.0159	0.0100	0.0076	1.18
<i>Ludwigia alternifolia</i>	0.1333	0.0159	0.0047	0.0036	0.98
<i>Boehmeria cylindrica</i>	0.0667	0.0079	0.0133	0.0101	0.90
* <i>Pontederia cordata</i>	0.0667	0.0079	0.0133	0.0101	0.90
<i>Fraxinus pennsylvanica</i>	0.0667	0.0079	0.0100	0.0076	0.78
* <i>Iris shrevii</i>	0.0667	0.0079	0.0100	0.0076	0.78
<i>Polygonum amphibium</i>	0.0667	0.0079	0.0100	0.0076	0.78
<i>Phragmites communis</i>	0.0667	0.0079	0.0067	0.0051	0.65
<i>Penthorum sedoides</i>	0.0667	0.0079	0.0067	0.0051	0.65
<i>Andropogon virginicus</i>	0.0667	0.0079	0.0067	0.0051	0.65
<i>Mimulus alatus</i>	0.0667	0.0079	0.0047	0.0036	0.58
<i>Senecio glabellus</i>	0.0667	0.0079	0.0033	0.0025	0.52
* <i>Alisma plantago aquatica</i>	0.0667	0.0079	0.0033	0.0025	0.52
<i>Eryngium prostratum</i>	0.0667	0.0079	0.0020	0.0015	0.47
<i>Lycopus virginicus</i>	0.0667	0.0079	0.0020	0.0015	0.47
<i>Phytolacca americana</i>	0.0667	0.0079	0.0013	0.0010	0.45
<i>Sium suave</i>	0.0667	0.0079	0.0013	0.0010	0.45
<i>Setaria glauca</i>	0.0667	0.0079	0.0013	0.0010	0.45
<i>Panicum anceps</i>	0.0667	0.0079	0.0013	0.0010	0.45
<i>Eleocharis acicularis</i>	0.0667	0.0079	0.0013	0.0010	0.45
<i>Pluchea camphorata</i>	0.0667	0.0079	0.0013	0.0010	0.45
<i>Ammannia coccinea</i>	0.0667	0.0079	0.0013	0.0010	0.45
<i>Erechtites hieracifolia</i>	0.0667	0.0079	0.0007	0.0005	0.42
Total	8.4006	1.0001	1.3200	1.0004	100.04

\* = planted species

Table 5. Understory species composition of Wet Meadow (Site 2). Freq., Rel. Freq., Dominance (m<sup>2</sup>/m<sup>2</sup>), Rel. Dom., Importance Value (%), N=9.

Species	Freq.	Rel. Freq.	Dom.	Rel. Dom.	I.V.
<i>Juncus interior</i>	1.000	0.0790	0.244	0.1634	12.12
<i>Pycnanthemum tenuifolium</i>	0.889	0.0702	0.189	0.1266	9.84
<i>Eupatorium serotinum</i>	0.778	0.0614	0.133	0.0891	7.53
<i>Solidago canadensis</i>	0.555	0.0438	0.133	0.0891	6.64
<i>Fraxinus pennsylvanica</i>	0.778	0.0614	0.097	0.0650	6.32
<i>Ulmus americana</i>	1.000	0.0790	0.063	0.0422	6.06
<i>Carex normalis</i>	0.778	0.0614	0.081	0.0543	5.79
<i>Lespedeza cuneata</i>	0.667	0.0527	0.061	0.0409	4.68
<i>Acalypha rhomboidea</i>	0.555	0.0438	0.041	0.0275	3.56
<i>Setaria glauca</i>	0.444	0.0351	0.040	0.0268	3.10
<i>Panicum acuminatum</i>	0.444	0.0351	0.037	0.0248	3.00
<i>Erechtites hieracifolia</i>	0.444	0.0351	0.028	0.0188	2.69
<i>Rubus pensylvanicus</i>	0.333	0.0263	0.037	0.0248	2.56
<i>Panicum rigidulum</i>	0.222	0.0175	0.050	0.0335	2.55
<i>Panicum clandestinum</i>	0.222	0.0175	0.044	0.0295	2.35
<i>Panicum anceps</i>	0.333	0.0263	0.021	0.0141	2.02
<i>Acer rubrum</i>	0.333	0.0263	0.021	0.0141	2.02
<i>Hypericum mutilum</i>	0.333	0.0263	0.020	0.0134	1.98
<i>Desmodium paniculatum</i>	0.222	0.0175	0.020	0.0134	1.55
<i>Paspalum laeve</i>	0.222	0.0175	0.014	0.0094	1.34
<i>Juncus brachycarpus</i>	0.222	0.0175	0.014	0.0094	1.34
<i>Leersia oryzoides</i>	0.222	0.0175	0.012	0.0080	1.27
<i>Vernonia missurica</i>	0.222	0.0175	0.011	0.0074	1.25
<i>Polygonum pensylvanicum</i>	0.111	0.0088	0.022	0.0147	1.17
<i>Lycopus americanus</i>	0.222	0.0175	0.007	0.0047	1.11
<i>Scirpus atrovirens</i>	0.222	0.0175	0.006	0.0040	1.08
<i>Verbena hastata</i>	0.111	0.0088	0.011	0.0074	0.81
<i>Andropogon virginicus</i>	0.111	0.0088	0.008	0.0054	0.71
<i>Ludwigia polycarpa</i>	0.111	0.0088	0.006	0.0040	0.64
<i>Solanum carolinense</i>	0.111	0.0088	0.006	0.0040	0.64
<i>Polygonum hydropiperoides</i>	0.111	0.0088	0.006	0.0040	0.64
<i>Bidens aristosa</i>	0.111	0.0088	0.006	0.0040	0.64
<i>Echinochloa muricata</i>	0.111	0.0088	0.003	0.0020	0.54
<i>Lindernia dubia</i>	0.111	0.0088	0.001	0.0007	0.47
Total	12.661	0.9999	1.493	1.0004	100.01

### C. Cover Type Report

Little change since last year.

Shrubland – This community is located in the western and north-central parts of the site. *Acer rubrum* dominates the sapling layer, and *Rubus pensylvanicus* the shrub layer, while *Solidago canadensis* and *Festuca pratensis* dominate the understory. Trees appear to be about twelve years old.

Wet Shrubland – This community is located in the eastern portion of the site. *Acer rubrum* and *Fraxinus pennsylvanica* dominate the sapling and shrub layers. Due to heavy shade, the understory is sparse. Species diversity has dramatically increased since last year. Trees appear to be about seventeen years old.

Wet Meadow – This community is now reduced to small, isolated patches scattered throughout the site, and will eventually succeed to forest. The herb layer is dominated by *Echinochloa muricata*, *Festuca pratensis*, *Lysimachia nummularia*, and *Panicum rigidulum*.

Floodplain Forest – Several areas in the southern portion of the site support floodplain forest. The majority of the trees are 40 to 60 years old, with scattered individuals aged about 90 years. *Quercus palustris*, *Fraxinus pennsylvanica*, and *Betula nigra* dominate the overstory, while *Acer rubrum* and *Fraxinus pennsylvanica* dominate the sapling and shrub layers. The understory is dominated by *Elymus virginicus*, *Festuca pratensis* and *Impatiens capensis*.

Emergent Wetland – In the central portion of the site, within an excavated area, an emergent wetland has become established. The dominant species are *Juncus acuminatus*, *Ludwigia palustris*, *Panicum rigidulum*, *Scirpus atrovirens* and *Paspalum laeve*. This community is of good natural quality and harbors a population of the State Endangered *Eryngium prostratum*.

Wet Meadow (oak-hickory wetland) – Within the excavated area, adjacent to the emergent wetland, a wet meadow has become established. The dominant species are *Juncus interior*, *Pycnanthemum tenuifolium*, *Eupatorium serotinum*, *Solidago canadensis* and *Fraxinus pennsylvanica*. The site is of good natural quality, and in 2001 the very uncommon plant species *Rhexia virginica* (CC=10) appeared. Seedling and shrub stage trees are common and this area will succeed to forest without management.

Ditch – This community has been recently created (1996) at the southeast border of the site. We mention this somewhat artificial community here because it has good natural quality and has harbored several very uncommon species, including *Rhexia virginica* (CC=10) and the State Endangered *Eryngium prostratum*. The dominant species are *Ludwigia palustris* and *Phyla lanceolata* (Table 6).

Grass Strip – A 14 m (45 ft) wide grass strip was established on disturbed land adjacent to the ditch in the southeast part of the site. *Andropogon gerardii* and *Agrostis alba* are the dominant species.

Table 6. Plant Communities Present

A. Emergent Wetland

Understory – dominant – *Ludwigia palustris*, *Juncus acuminatus*, *Panicum rigidulum*,  
*Scirpus atrovirens*, *Paspalum laeve*

Understory – occasional – *Eleocharis obtusa*, *Eupatorium serotinum*, *Lycopus americanus*,  
*Pluchea camphorata*, *Ludwigia alternifolia*, *Eryngium prostratum*

B. Wet Meadow (oak-hickory wetland)

Understory – dominant – *Juncus interior*, *Pycnanthemum tenuifolium*,  
*Eupatorium serotinum*, *Solidago canadensis*

Understory – occasional – *Lycopus americanus*, *Acalypha rhomboidea*,  
*Lespedeza cuneata*, *Fraxinus pennsylvanica*,  
*Panicum rigidulum*, *Andropogon virginicus*

C. Floodplain Forest

Overstory- dominant – *Quercus palustris*, *Betula nigra*, *Fraxinus pennsylvanica*

Sapling/Shrub – dominant – *Fraxinus pennsylvanica*, *Acer rubrum*

Understory – dominant – *Elymus virginicus*, *Festuca pratensis*, *Impatiens capensis*

Overstory – occasional – *Acer rubrum*, *Ulmus americana*, *Gleditsia triacanthos*

Sapling/Shrub – occasional – *Quercus palustris*, *Acer negundo*, *Symphoricarpos orbiculatus*

Understory – occasional – *Cinna arundinacea*, *Glyceria striata*, *Lysimachia nummularia*

D. Wet Shrubland

Sapling/Shrub – dominant – *Acer rubrum*, *Fraxinus pennsylvanica*

Sapling – occasional – *Betula nigra*, *Ulmus americana*, *Diospyros virginiana*,

Shrub – occasional – *Ulmus americana*, *Rubus occidentalis*, *Rosa multiflora*

Understory – occasional – *Festuca pratensis*, *Lysimachia nummularia*, *Geum canadense*

E. Shrubland

Sapling – dominant – *Acer rubrum*

Shrub – dominant – *Rubus pensylvanicus*

Understory – dominant – *Solidago canadensis*, *Festuca pratensis*

Sapling – occasional – *Fraxinus pennsylvanica*, *Gleditsia triacanthos*, *Acer negundo*

Shrub – occasional – *Rosa multiflora*, *Symphoricarpos orbiculatus*, *Eleagnus angustifolia*

Understory – occasional – *Apocynum cannabinum*, *Euthamia graminifolia*, *Aster pilosus*

F. Ditch

Understory – dominant – *Ludwigia palustris*, *Phyla lanceolata*

Understory – occasional – *Lobelia cardinalis*, *Eryngium prostratum*, *Leersia oryzoides*

## Faunal Surveys

### Amphibians and Reptiles

#### Amphibians:

1. Blanchard's Cricket Frog (*Acris crepitans blanchardi*) - 1999, 2000, 2001
2. Cope's Gray Treefrog (*Hyla chrysoscelis*) - 1999, 2000, 2001
3. Spring Peeper (*Pseudacris crucifer*) - 1999, 2000
4. Western Chorus Frog (*Pseudacris triseriata*) - 1999, 2000, 2001
5. Southern Leopard Frog (*Rana sphenoccephala*) - 1999, 2000, 2001
6. Smallmouth Salamander (*Ambystoma texanum*) - 2000, 2001
7. Spotted Salamander (*Ambystoma maculatum*) - 2001
8. Tiger Salamander (*Ambystoma tigrinum*) - 2001

#### Reptiles:

1. Eastern Box Turtle (*Terrepenne carolina*) - 2000, 2001
2. Common Snapping Turtle (*Chelydra serpentina*) - 2001

### Species Observations

#### Blanchard's Cricket Frog

Two adult Blanchard's cricket frogs were observed in the east ditch on 27 April, and three on 28 September. On 7 June and 18 July, many were heard calling in the emergent wetland. Seventeen metamorphs were observed in the emergent wetland and egg masses were found in the east ditch on 20 July.

#### Cope's Gray Treefrog

On 27 April two Cope's gray treefrogs were heard calling in the south forest. Many were heard calling from the emergent wetland on 7 June and 18 July. Five adults were observed in the emergent wetland on 7 June. On 28 September one metamorph and 100 larvae were dipnetted in the east ditch.

#### Western Chorus Frog

On 1 March one western chorus frog egg mass was observed in the emergent wetland and one in the wooded pond. Four metamorphs were observed in the south forest on 7 June. On 8 June one adult was observed in the east ditch. One adult was heard calling on 28 September in the emergent wetland.

#### Southern Leopard Frog

On 1 March, 21 southern leopard frog egg masses and one adult were observed in the emergent wetland, and 12 were heard calling. On 27 April, five adults were observed in the east ditch and one in the emergent wetland. Many larvae were observed in the emergent wetland on 8 June. One juvenile was observed in pit fall trap in the south forest on 20 July. On 28 September, five adults were observed at the southwest corner of the site.

#### Smallmouth Salamander

In the wooded pond, 100 smallmouth salamander egg masses were observed on 1 March. One larva was dipnetted from the wooded pond, and one from the emergent wetland, on 27 April.

#### Spotted Salamander

Two spotted salamander egg masses were observed in the wooded pond on 1 March.

#### Tiger Salamander

On 27 April one tiger salamander larva was dipnetted in the emergent wetland.

#### Eastern Box Turtle

One adult male eastern box turtle was observed on 27 April and one juvenile was observed on 7 June in the south forest. On 8 June two adult females and one adult male were observed in the forest west and north of the emergent wetland. On 28 September, one adult was observed at each of the following locations: forest north of emergent wetland, wooded pond, east ditch, and emergent wetland.

#### Common Snapping Turtle

One adult common snapping turtle was observed in the emergent wetland on 27 April.

Seven species of amphibians were observed during the 2001 field season. The spotted salamander and the tiger salamander were new species for the site and for the county. The spring peeper was not observed during surveys, but it likely still inhabits the wetland site. The cricket frog, Cope's gray treefrog, western chorus frog, and southern leopard frog have been observed all three years (1999-2001) of the survey. The analysis of gray treefrog recordings documents Cope's gray treefrog as the member of the gray treefrog complex that occurs at the project site. Eggs of three species (smallmouth salamander, western chorus frog, and southern leopard frog) were observed in 2000. Eggs of the same three species plus spotted salamanders and Blanchard's cricket frogs were observed in 2001. Larvae/tadpoles of smallmouth salamanders, Blanchard's cricket frogs, spring peepers, western chorus frogs, Cope's gray treefrogs, and southern leopard frogs were observed in surveys conducted in 1999 and 2000. Positive larvae/tadpole identifications were made for the following species in 2001: smallmouth salamander, tiger salamander, and Cope's gray treefrog. Evidence of recruitment is apparent for all amphibian species listed above.

Only two reptile species (common snapping turtle and eastern box turtle) were observed during the 2001 field season. An eastern box turtle had been observed as a roadkill in 2000 near the southern boundary of the wetland compensation site. Eastern box turtles were observed on four different visits (27 April, 7 & 8 June, and 28 September). The snapping turtle was the first of its species found at the wetland compensation site. No snakes were observed for the third consecutive year, although suitable habitat exists for several species.

#### Avifauna

Data on avifauna was not provided this year.

## Summary and Recommendations

In September 2001, A close out meeting was held on site. In attendance were representatives from Illinois Department of Transportation, U. S. Army Corps of Engineers, U. S. Fish and Wildlife Service, Illinois Department of Natural Resources, Illinois State Geological Survey, and Illinois Natural History Survey. At this meeting the Corps indicated that, after three years of monitoring, this site would be considered to be a successful wetland creation suitable for mitigation of wetland impacts due to IL 13 highway construction. However, the following two conditions need to be met: 1) The exotic, planted Chinese beauty berry (*Callicarpa dichotoma*) and 2) the invasive giant reed (*Phragmites communis*) need to be removed from the emergent wetland. We recommend pruning, followed by treatment with Rodeo (glyphosate).

Overall, this site has developed quite well. Shallow excavation and berm construction have resulted in at least 4.45 ha (11.0 acres) of wetland creation. Planted herbaceous and woody species are doing well. In the emergent wetland, nine planted species are present and healthy and most are reproducing and spreading well beyond their original planting cells. In the oak-hickory and cypress-gum plantings, 13 planted species are present and nine of these are relatively abundant. Although planted woody species have experienced mortality, the plantings still remain abundant and healthy enough to represent a significant component of the developing forest. Diversity of naturally occurring plant species has steadily increased, and all natural plant communities on site currently have Floristic Quality Indices (FQI's) of 20.0 or above. The emergent wetland and wet meadow (oak-hickory wetland) currently occupying the excavated area support especially high natural quality (FQI = 30.1, 31.6 including planted species). In these two communities, healthy populations of the State Endangered *Eryngium prostratum*, and other very uncommon plants (*Pluchea camphorata*, *Rhexia virginica*) occur. All communities have much less than 50% exotic or weedy species. Although two communities, wet meadow and shrubland, have weedy species among the three most dominant (*Eupatorium serotinum* in the wet meadow and *Solidago canadensis* and *Festuca pratensis* in the shrubland), these species will certainly decrease as forest cover increases. We estimate that without management the entire site will succeed to forest. The wet meadow (oak-hickory wetland), along with most of the site, should develop into bottomland or floodplain forest dominated by green ash, red maple, river birch and possibly pin oak. The emergent wetland with cypress-gum wetland superimposed appears to be developing into open forest dominated by black willow and red maple, with marsh vegetation interspersed. This site will continue to support a considerable area of ephemeral, fish free ponds and be very valuable for amphibian reproduction.

Several potentially serious problems are present at this site and should be addressed. The wet meadow still supports abundant *Lespedeza cuneata*, even though this species greatly decreased this year. Although this species should continue to decrease as forest canopy develops, it has the potential to overrun a site and displace many species. If *Lespedeza* continues to be a problem, mowing followed by application of Remedy, Ally or Escort is recommended (Vermeire et al., no date; Kansas Forage Task Force, no date). The emergent wetland supports abundant planted *Callicarpa dichotoma* and invading *Phragmites communis*, both of which have increased this year. These species have the potential to overrun emergent wetlands and displace many species. Pruning followed by application of Rodeo (glyphosphate) is recommended.

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## **Appendix 1: Wetland Determinations**

### **Species Lists and Site Photographs**



Fig. 3. Photo location 1. Wet Meadow and Emergent Wetland



Fig. 4. Photo location 2. Emergent Wetland



Fig. 5. Photo location 3. Emergent Wetland



Fig. 6 Photo location 4. Emergent Wetland and Wet Meadow

## ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 1 of 4)

**Field Investigators:** Plocher, Larimore, Keene      **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B      **Project Name:** FAP 331 (IL 13)

**State:** Illinois      **County:** Saline      **Applicant:** IDOT District 9  
**Site Name:** Emergent Wetland

**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4

**Location:** eastern part of the central portion of the site (adjacent to Site 2)

Do normal environmental conditions exist at this site?      Yes: X      No:  
Has the vegetation, soil, or hydrology been significantly disturbed?      Yes:      No: X

### VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. <i>Ludwigia palustris</i>	herb	OBL
2. <i>Juncus acuminatus</i>	herb	OBL
3. <i>Panicum rigidulum</i>	herb	FACW
4. <i>Scirpus atrovirens</i>	herb	OBL
5. <i>Paspalum laeve</i>	herb	FACW-

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 100%

**Hydrophytic vegetation:** Yes: X      No:

**Rationale:** More than 50% of dominants are OBL, FACW, FAC+, or FAC.

### SOILS

Series and phase: Bonnie silt loam

On Saline County hydric soils list?      Yes: X      No:

Is the soil a histosol?      Yes:      No: X      Histic epipedon present?      Yes:      No: X

Redox concentrations:      Yes: X      No:      Redox depletions:      Yes: X      No:

Matrix color: 5Y 7/1

Other indicators: This soil is found in a level to depressional area on a floodplain.

**Hydric soils:** Yes: X      No:

**Rationale:** Bonnie silt loam is a poorly drained soil that meets the requirements of the Natural Resource Conservation Service hydric soil indicator F3, depleted matrix.

## ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 2 of 4)

**Field Investigators:** Plocher, Larimore, Keene      **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B      **Project Name:** FAP 331 (IL 13)  
Wetland Mitigation  
**State:** Illinois      **County:** Saline      **Applicant:** IDOT District 9  
**Site Name:** Emergent Wetland  
**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4  
**Location:** eastern part of the central portion of the site (adjacent to Site 2)

### HYDROLOGY

Inundated: Yes:      No: X      Depth of standing water: NA  
Depth to saturated soil: 0.2 m (8 inches)  
Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from the surrounding uplands. Evapotranspiration and sheetflow are the major outputs.  
Size of watershed: 2.59 km<sup>2</sup> (1 mi<sup>2</sup>)  
Other field evidence observed: wetland drainage pattern, bare soil areas, the site is an excavated depression.

**Wetland hydrology:** Yes: X      No:  
**Rationale:** The evidence cited above indicates that this site is flooded or saturated for a sufficient period during the growing season to meet the criterion of wetland hydrology.

### WETLAND DETERMINATION AND RATIONALE:

**Is the site a wetland?:** Yes: X      No:  
**Rationale:** Hydrophytic vegetation, hydric soils and wetland hydrology are present. Therefore the site is a wetland. The site is not coded by the NWI.

Determined by: Allen Plocher (vegetation and hydrology)  
Rick Larimore (vegetation and hydrology)  
Dennis Keene (soils and hydrology)  
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# ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 3 of 4)

**Field Investigators:** Plocher, Larimore, Keene **Date:** 4 September 2001

**Sect. No.:** (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13)

Wetland Mitigation

**State:** Illinois **County:** Saline

**Applicant:** IDOT District 9

**Site Name:** Emergent Wetland

**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4

**Location:** eastern part of the central portion of the site (adjacent to Site 2)

## SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
<i>*Acalypha rhomboidea</i>	three seeded Mercury	herb	FACU	0
<i>Acer rubrum</i>	red maple	shrub/seedl	FAC	5
<i>Alisma plantago aquatica</i>	water plantain	herb	OBL	2
<i>Ammannia coccinea</i>	ammannia	herb	OBL	5
<i>*Andropogon virginicus</i>	broomsedge	herb	FAC-	1
<i>Asclepias incarnata</i>	swamp milkweed	herb	OBL	4
<i>**Bidens connata</i>	beggar's ticks	herb	OBL	2
<i>**Bidens frondosa</i>	beggar's ticks	herb	FACW	1
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>*Callicarpa dichotoma</i>	Chinese beautyberry	herb	(planted)	
<i>Carex hyalinolepis</i>	sedge	herb	OBL	4
<i>Carex lupulina</i>	hop sedge	herb	OBL	5
<i>Carex normalis</i>	sedge	herb	FACW	4
<i>Cephalanthus occidentalis</i>	button bush	shrub/seedl	OBL	4
<i>Cornus obliqua</i>	pale dogwood	shrub	FACW+	4
<i>Cyperus pseudovegatus</i>	flat sedge	herb	FACW	5
<i>*Cyperus strigosus</i>	straw colored flat sedge	herb	FACW	0
<i>Diospyros virginiana</i>	persimmon	shrub	FAC	2
<i>*Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eclipta prostrata</i>	yerba de tajo	herb	FACW	2
<i>Eleocharis acicularis</i>	sedge	herb	OBL	3
<i>Eleocharis erythropoda</i>	spike rush	herb	(planted)	3
<i>**Eleocharis obtusa</i>	spike rush	herb	OBL	2
<i>**Erechtites hieracifolia</i>	fireweed	herb	FACU	2
<i>Eryngium prostratum</i>	eryngo	herb	OBL	5
<i>Eupatorium coelestinum</i>	mist flower	herb	FAC+	3
<i>Eupatorium perfoliatum</i>	boneset	herb	FACW+	4
<i>*Eupatorium serotinum</i>	late flowering thoroughwort	herb	FAC+	1
<i>Fraxinus pennsylvanica</i>	green ash	shrub/seedl	FACW	2
<i>Helenium autumnale</i>	sneezeweed	herb	FACW+	3
<i>Hypericum mutilum</i>	dwarf St. John's wort	herb	FACW	5
<i>Iris shrevei</i>	blue flag iris	herb	(planted)	5
<i>Itea virginica</i>	sweet spires	shrub	(planted)	10
<i>Juncus acuminatus</i>	knotty leaf rush	herb	OBL	4
<i>Juncus brachycarpus</i>	rush	herb	FACW	5
<i>Juncus interior</i>	inland rush	herb	FAC+	3
<i>Juncus marginatus</i>	grass leaved rush	herb	FACW	5
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Lindernia dubia</i>	false pimpernel	herb	OBL	5
<i>Ludwigia alternifolia</i>	seedbox	herb	OBL	5
<i>Ludwigia palustris</i>	marsh purslane	herb	OBL	4

\*\*\*Floristic Quality Index, as developed by Taft, Ladd, Wilhelm and Masters (1997)

(continued on following page)

# ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 4 of 4)

Field Investigators: Plocher, Larimore, Keene Date: 4 September 2001

Sect. No.: (7-3, 8-1-1) A, 8-1 B Project Name: FAP 331 (IL 13)

Wetland Mitigation

State: Illinois County: Saline

Applicant: IDOT District 9

Site Name: Emergent Wetland

Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: eastern part of the central portion of the site (adjacent to Site 2)

## SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
<i>Ludwigia polycarpa</i>	many fruited seedbox	herb	OBL	5
<i>Lycopus americanus</i>	water horehound	herb	OBL	3
<i>Lycopus virginicus</i>	bugle weed	herb	OBL	5
<i>Mimulus alatus</i>	winged monkey flower	herb	OBL	6
<i>Panicum anceps</i>	panic grass	herb	FACW	3
<i>Panicum rigidulum</i>	Munro grass	herb	FACW	6
<i>Paspalum laeve</i>	smooth bead grass	herb	FACW-	2
<i>Penthorum sedoides</i>	ditch stonecrop	herb	OBL	2
* <i>Phragmites communis</i>	giant reed	herb	FACW+	1
* <i>Phyla lanceolata</i>	fog fruit	herb	OBL	1
* <i>Phytolacca americana</i>	pokeweed	herb	FAC-	0
<i>Pluchea camphorata</i>	camphor weed	herb	FACW	8
<i>Polygonum amphibium</i>	water smartweed	herb	OBL	3
<i>Polygonum hydropiperoides</i>	water pepper	herb	OBL	4
** <i>Polygonum pensylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Pontederia cordata</i>	pickeralweed	herb	(planted)	8
<i>Populus deltoides</i>	cottonwood	shrub/seedl	FAC+	2
<i>Quercus lyrata</i>	overcup oak	shrub	(planted)	7
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Sagittaria latifolia</i>	arrow head	herb	OBL	4
<i>Salix amygdaloides</i>	peach leaf willow	shrub	FACW	4
<i>Salix nigra</i>	black willow	shrub/seedl	OBL	3
<i>Scirpus americanus</i>	American bulrush	herb	(planted)	3
<i>Scirpus atrovirens</i>	green bulrush	herb	OBL	4
<i>Scirpus cyperinus</i>	wool grass	herb	OBL	5
<i>Scirpus validus</i>	great bulrush	herb	(planted)	4
<i>Scutellaria lateriflora</i>	mad dog skullcap	herb	OBL	4
* <i>Senecio glabellus</i>	butterweed	herb	OBL	0
* <i>Setaria glauca</i>	yellow foxtail	herb	FAC	
<i>Sium suave</i>	water parsnip	herb	OBL	5
<i>Sparganium eurycarpum</i>	burreed	herb	(planted)	5
<i>Taxodium distichum</i>	bald cypress	shrub	(planted)	7
* <i>Typha angustifolia</i>	narrow leaf cattail	herb	OBL	
* <i>Typha latifolia</i>	common cattail	herb	OBL	1
<i>Ulmus americana</i>	American elm	seedl	FACW-	5
<i>Verbena hastata</i>	blue vervain	herb	FACW+	3
* <i>Xanthium strumarium</i>	cocklebur	herb	FAC	0

\*\*\*Floristic Quality Index, as developed by Taft, Ladd, Wilhelm and Masters (1997)

\*=non-native or weedy (17.9%), \*\*=annual, but desirable

FQI=R/√N=209/√66= 25.7, mean C=R/N=209/66= 3.2

FQI (including planted species) = 261/√75= 30.1, mean C=R/N=261/75=3.5

## ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 1 of 5)

**Field Investigators:** Plocher, Larimore, Keene      **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B      **Project Name:** FAP 331 (IL 13)  
Wetland Mitigation  
**State:** Illinois      **County:** Saline      **Applicant:** IDOT District 9  
**Site Name:** Wet Meadow (oak, - hickory wetland)  
**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4

**Location:** central portion of site (adjacent to Site 1)

Do normal environmental conditions exist at this site?      Yes: X      No:  
Has the vegetation, soil, or hydrology been significantly disturbed?      Yes:      No: X

### VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. <i>Juncus interior</i>	herb	FAC+
2. <i>Pycnanthemum tenuifolium</i>	herb	FAC
3. <i>Eupatorium serotinum</i>	herb	FAC+
4. <i>Solidago canadensis</i>	herb	FACU
5. <i>Fraxinus pennsylvanica</i>	herb	FACW

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 80%

**Hydrophytic vegetation:** Yes: X      No:

**Rationale:** More than 50% of dominants are OBL, FACW, FAC+, or FAC.

### SOILS

Series and phase: Bonnie silt loam

On Saline County hydric soils list?      Yes: X      No:

Is the soil a histosol?      Yes:      No: X      Histic epipedon present?      Yes:      No: X

Redox concentrations:      Yes: X      No:      Redox depletions:      Yes: X      No:

Matrix color: 5Y 7/1 and 2.5Y 6/2

Other indicators: This soil is found in a level to depressional area on a floodplain.

**Hydric soils:** Yes: X      No:

**Rationale:** Bonnie silt loam is a poorly drained soil that meets the requirements of the Natural Resource Conservation Service hydric soil indicator F3, depleted matrix.

## ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 2 of 5)

**Field Investigators:** Plocher, Larimore, Keene      **Date:** 4 September 2001

**Sect. No.:** (7-3, 8-1-1) A, 8-1 B      **Project Name:** FAP 331 (IL 13)

Wetland Mitigation

**State:** Illinois      **County:** Saline      **Applicant:** IDOT District 9

**Site Name:** Wet Meadow (oak- hickory wetland)

**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4

**Location:** central portion of the site (adjacent to Site 1)

### HYDROLOGY

Inundated: Yes:      No: X      Depth of standing water: NA

Depth to saturated soil: 0.5 m (20 in)

Overview of hydrological flow through the system:      Primary hydrologic inputs to this site are precipitation, runoff from the surrounding uplands and occasional overbank flow. Evapotranspiration and sheetflow are the major outputs.

Size of watershed: 2.59 km<sup>2</sup> (1 mi<sup>2</sup>)

Other field evidence observed: The site is level to depressional on the landscape.

**Wetland hydrology:** Yes: X      No:

**Rationale:** Field evidence indicates that this site is inundated or saturated for a sufficient portion of the growing season to meet the wetland hydrology criterion.

### WETLAND DETERMINATION AND RATIONALE:

**Is the site a wetland?:** Yes: X      No:

**Rationale:** Hydrophytic vegetation, hydric soils and wetland hydrology are present. Therefore the site is a wetland. The site is not coded by the NWI.

Determined by: Allen Plocher (vegetation and hydrology)  
Rick Larimore (vegetation and hydrology)  
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Illinois Natural History Survey  
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# ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 3 of 5)

Field Investigators: Plocher, Larimore, Keene Date: 4 September 2001  
 Sect. No.: (7-3, 8-1-1) A, 8-1 B Project Name: FAP 331 (IL 13)  
 Wetland Mitigation  
 State: Illinois County: Saline Applicant: IDOT District 9  
 Site Name: Wet Meadow (oak – hickory wetland)  
 Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4  
 Location: central portion of the site (adjacent to Site 1)

## SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
* <i>Acalypha rhomboidea</i>	three seeded Mercury	herb	FACU	0
** <i>Acalypha virginica</i>	three seeded Mercury	herb	FACU	2
<i>Acer rubrum</i>	red maple	shrub/seedl	FAC	5
<i>Agalinus tenuifolia</i>	slender false foxglove	herb	FACW	5
* <i>Andropogon virginicus</i>	broomsedge	herb	FAC-	1
<i>Betula nigra</i>	river birch	shrub/seedl	FACW	4
** <i>Bidens aristosa</i>	beggar's ticks	herb	FACW	1
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Boltonia diffusa</i>	false aster	herb	FACW	4
* <i>Callicarpa dichotoma</i>	Chinese beautyberry	shrub	(planted)	
<i>Carex annectans</i>	sedge	herb	FACW	3
<i>Carex normalis</i>	sedge	herb	FACW	4
<i>Carex tribuloides</i>	sedge	herb	FACW+	3
<i>Carpinus caroliniana</i>	iron wood	shrub	(planted)	6
<i>Carya illinoensis.</i>	pecan	shrub	(planted)	6
<i>Catalpa speciosa</i>	catalpa	shrub	FACU	-
<i>Cirsium discolor</i>	field thistle	herb	UPL	2
<i>Cornus obliqua</i>	pale dogwood	shrub	FACW+	4
<i>Crateagus phaenopyrum</i>	Washington thorn	shrub	(planted)	5
* <i>Cyperus strigosus</i>	straw colored flat sedge	herb	FACW	0
<i>Desmodium paniculatum</i>	panicked tick trefoil	herb	FACU	2
<i>Diospyros virginiana</i>	persimmon	shrub/seedl	FAC	2
* <i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
* <i>Elaeagnus angustifolia</i>	Russian olive	shrub	FACU-	
** <i>Erechtites hieracifolia</i>	fireweed	herb	FACU	2
<i>Eupatorium coelestinum</i>	mistflower	herb	FAC+	3
<i>Eupatorium perfoliatum</i>	boneset	herb	FACW+	4
* <i>Eupatorium serotinum</i>	late flowering thoroughwort	herb	FAC+	1
<i>Euthamia graminifolia</i>	grass leaf goldenrod	herb	FACW-	3

\*\*\*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

(continued on following page)

# ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 4 of 5)

Field Investigators: Plocher, Larimore, Keene Date: 4 September 2001

Sect. No.: (7-3, 8-1-1) A, 8-1 B Project Name: FAP 331 (IL 13)

Wetland Mitigation

State: Illinois County: Saline Applicant: IDOT District 9

Site Name: Wet Meadow (oak - hickory wetland)

Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: central portion of the site (adjacent to Site1)

## SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
<i>Fraxinus pennsylvanica</i>	green ash	shrub/seedl	FACW	2
<i>Helenium autumnale</i>	sneezeweed	herb	FACW+	3
<i>Hypericum mutilum</i>	dwarf St. John's wort	herb	FACW	5
<i>Hypericum prolificum</i>	shrub St. John's wort	herb	FACU	6
<i>Impatiens capensis</i>	jewelweed	herb	FACW	2
<i>Itea virginica</i>	sweet spires	shrub/seedl	(planted)	10
<i>Juncus brachycarpus</i>	rush	herb	FACW	5
<i>Juncus interior</i>	inland rush	herb	FAC+	3
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
* <i>Lespedeza cuneata</i>	Chinese bush clover	herb	NI	
<i>Lindernia dubia</i>	false pimpernel	herb	OBL	5
<i>Liquidambar styraciflua</i>	sweet gum	shrub	(planted)	6
<i>Lobelia inflata</i>	Indian tobacco	herb	FACU-	4
* <i>Lonicera japonica</i>	Japanese honeysuckle	herb	FACU	
<i>Ludwigia alternifolia</i>	seedbox	herb	OBL	5
<i>Ludwigia polycarpa</i>	many fruited seedbox	herb	OBL	5
<i>Lycopus americanus</i>	water horehound	herb	OBL	3
<i>Lycopus virginicus</i>	bugleweed	herb	OBL	5
<i>Mimulus altatus</i>	winged monkey flower	herb	OBL	6
<i>Nyssa sylvatica</i>	black gum	shrub	(planted)	7
* <i>Oenothera biennis</i>	evening primrose	herb	FACU	1
<i>Onoclea sensibilis</i>	sensitive fern	herb	FACW	5
<i>Panicum acuminatum</i>	panic grass	herb	FAC	2
<i>Panicum anceps</i>	panic grass	herb	FACW	3
<i>Panicum clandestinum</i>	deer tongue grass	herb	FACW	4
* <i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Panicum rigidulum</i>	Munro grass	herb	FACW	6
<i>Paspalum laeve</i>	smooth bead grass	herb	FACW-	2

\*\*\*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

(continued on following page)

# ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 5 of 5)

Field Investigators: Plocher, Larimore, Keene Date: 4 September 2001

Sect. No.: (7-3, 8-1-1) A, 8-1 B Project Name: FAP 331 (IL 13)

Wetland Mitigation

State: Illinois County: Saline Applicant: IDOT District 9

Site Name: Wet Meadow (oak – hickory wetland)

Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: central portion of the site (adjacent to Site 1)

## SPECIES LIST (Continued)

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
<i>*Phragmites communis</i>	giant reed	herb	FACW+	1
<i>Platanus occidentalis</i>	sycamore	shrub/seedl	FACW	3
<i>Pluchea camphorata</i>	camphor weed	herb	FACW	8
<i>Polygonum hydropiperoides</i>	water pepper	herb	OBL	4
<i>**Polygonum pensylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Polygonum punctatum</i>	dotted smartweed	herb	OBL	3
<i>Populus deltoides</i>	cottonwood	shrub/seedl	FAC+	2
<i>*Prunella vulgaris elongata</i>	self heal	herb	FAC	1
<i>Pycnanthemum tenuifolium</i>	mountain mint	herb	FAC	4
<i>Quercus bicolor</i>	swamp white oak	shrub	(planted)	7
<i>Quercus lyrata</i>	overcup oak	shrub/seedl	(planted)	7
<i>Quercus palustris</i>	pin oak	shrub/seedl	(planted)	4
<i>Rhexia virginica</i>	meadow beauty	herb	OBL	10
<i>Rhus coppalina</i>	winged sumac	shrub	UPL	2
<i>Rubus pensylvanicus</i>	black berry	shrub	FAC-	2
<i>Rosa setigera</i>	Illinois rose	shrub	FACU+	5
<i>Salix amygdaloides</i>	peach leaf willow	shrub/seedl	FACW	4
<i>Salix nigra</i>	black willow	shrub/seedl	OBL	3
<i>Scirpus atrovirens</i>	green bulrush	herb	OBL	4
<i>Scirpus cyperinus</i>	wool grass	herb	OBL	5
<i>Scutellaria lateriflora</i>	mad dog scullcap	herb	OBL	4
<i>*Setaria glauca</i>	yellow foxtail	herb	FAC	
<i>*Solanum carolinense</i>	horse nettle	herb	FACU-	0
<i>*Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>*Toxicodendron radicans</i>	poison ivy	seedl	FAC+	1
<i>*Tridens flavus</i>	false redtop	herb	UPL	1
<i>Ulmus americana</i>	American elm	shrub/seedl	FACW-	5
<i>Verbena hastata</i>	blue vervain	herb	FACW+	3
<i>Vernonia missurica</i>	Missouri ironweed	herb	FAC+	5

\*\*\*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

\*=non-native or weedy (19.8%), \*\*=annual, but desirable

FQI= $R/\sqrt{N}=225/\sqrt{71}=26.7$ , mean  $C=R/N=225/71=3.2$

FQI (including planted species)= $283/\sqrt{80}=31.6$ , mean  $C=283/80=3.5$

# ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 1 of 4)

**Field Investigators:** Plocher, Larimore, Keene      **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B      **Project Name:** FAP 331 (IL 13)  
Wetland Mitigation  
**State:** Illinois      **County:** Saline      **Applicant:** IDOT District 9  
**Site Name:** Shrubland  
**Legal Description:** T.9S., R.5 E., Sect. 18, NE/4 SW/4

**Location:** western portion of the site

Do normal environmental conditions exist at this site?      Yes: X      No:  
Has the vegetation, soil, or hydrology been significantly disturbed?      Yes:      No: X

## VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. <i>Acer rubrum</i>	sapling	FAC
2. <i>Rubus pensylvanicus</i>	shrub	FAC-
3. <i>Solidago canadensis</i>	herb	FACU
4. <i>Festuca pratensis</i>	herb	FACU-

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 25%

**Hydrophytic vegetation:** Yes:      No: X  
**Rationale:** Not more than 50% of dominants are OBL, FACW, FAC+, or FAC.

## SOILS

Series and phase: Banlic silt loam

On Saline County hydric soils list?

Is the soil a histosol?      Yes:      No: X      Yes:      No: X

Redox concentrations:      Yes: X      No:      Redox depletions:      Yes:      No: X

Matrix color: 10YR 5/3

Other indicators: None

**Hydric soils:** Yes:      No: X

**Rationale:** Banlic silt loam is a somewhat poorly drained soil that lacks hydric soil characteristics.

## **ROUTINE ON-SITE WETLAND DETERMINATION**

Site 3 (page 2 of 4)

**Field Investigators:** Plocher, Larimore, Keene **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13)  
**Wetland Mitigation**  
**State:** Illinois **County:** Saline **Applicant:** IDOT District 9  
**Site Name:** Shrubland  
**Legal Description:** T.9S., R.5 E., Sect. 18, NE/4 SW/4

**Location:** western portion of the site

### **HYDROLOGY**

Inundated? Yes: No: X

Depth of standing water: NA

Depth to saturated soil: > 1.2 m (48 in)

Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from the surrounding uplands. Evapotranspiration and sheetflow are the major outputs.

Size of watershed: 2.59 km<sup>2</sup> (1 mi<sup>2</sup>)

Other field evidence observed: none

**Wetland hydrology:** Yes: No: X

**Rationale:** Field evidence suggests that this site is not saturated or inundated for a sufficient duration during the growing season to meet the wetland hydrology criterion.

### **WETLAND DETERMINATION AND RATIONALE:**

**Is the site a wetland?** Yes: No: X

**Rationale:** Hydrophytic vegetation, hydric soils and wetland hydrology are all absent. Therefore the site is not a wetland. The site is not coded by the NWI.

Determined by: Allen Plocher (vegetation and hydrology)  
Rick Larimore (vegetation and hydrology)  
Dennis Keene (soils and hydrology)  
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# ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 3 of 4)

Field Investigators: Plocher, Larimore, Keene Date: 4 September 2001  
 Sect. No.: (7-3, 8-1-1) A, 8-1 B Project Name: FAP 331 (IL 13)  
 Wetland Mitigation  
 State: Illinois County: Saline Applicant: IDOT District 9  
 Site Name: Shrubland  
 Legal Description: T.9S., R.5 E., Sect. 18, NE/4 SW/4  
 Location: western portion of the site

## SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
<i>*Acalypha rhomboidea</i>	three seeded Mercury	herb	FACU	0
<i>Acer rubrum</i>	red maple	sapling, shrub, seedl	FAC	5
<i>*Acer negundo</i>	box elder	sapling, shrub, seedl	FACW-	1
<i>Andropogon gerardii</i>	big bluestem	herb	FAC-	5
<i>*Andropogon virginicus</i>	broomsedge	herb	FAC-	1
<i>Apocynum cannabinum</i>	dogbane	herb	FAC	2
<i>*Aster pilosus</i>	hairy aster	herb	FACU+	0
<i>Betula nigra</i>	river birch	shrub/sapl	FACW	4
<i>**Bidens aristosa</i>	beggar's ticks	herb	FACW	1
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Campsis radicans</i>	trumpet creeper	herb	FAC	2
<i>Carex pennsylvanica</i>	Pennsylvania sedge	herb	UPL	5
<i>Catalpa speciosa</i>	catalpa	sapling	FACU	-
<i>Cirsium discolor</i>	field thistle	herb	UPL	2
<i>Clematis virginiana</i>	virgin's bower	herb	FAC	3
<i>Cornus obliqua</i>	pale dogwood	shrub	FACW+	4
<i>Crateagus mollis</i>	red haw	sapling, shrub	FACW-	2
<i>Desmodium paniculatum</i>	panicked tick trefoil	herb	FACU	2
<i>Diospyros virginiana</i>	persimmon	sapling, shrub, seedl	FAC	2
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>*Eleagnus angustifolia</i>	Russian olive	sapling, shrub	FACU-	
<i>**Erechtites hieracifolia</i>	fireweed	herb	FACU	2
<i>Eupatorium coelestinum</i>	mistflower	herb	FAC+	3
<i>Eupatorium perfoliatum</i>	boneset	herb	FACW+	4
<i>*Eupatorium serotinum</i>	late flowering thoroughwort	herb	FAC+	1
<i>Euthamia graminifolia</i>	grass leaved goldenrod	herb	FACW-	3
<i>*Festuca pratensis</i>	English bluegrass	herb	FACU-	
<i>Fraxinus pennsylvanica</i>	green ash	sapling, shrub, seedl	FACW	2
<i>Gleditsia triacanthos</i>	honey locust	sapling, shrub, seedl	FAC	2
<i>Impatiens capensis</i>	jewelweed	herb	FACW	2
<i>Juncus interior</i>	inland rush	herb	FAC+	3
<i>Juniperus virginiana</i>	eastern red cedar	shrub/sapl	FACU	1
<i>Lactuca floridana</i>	blue lettuce	herb	FAC-	4
<i>*Lespedeza cuneata</i>	Chinese bush clover	herb	NI	
<i>Liquidambar styraciflua</i>	sweetgum	shrub	FACW	6

\*\*\*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

(Species list continued on next page)

# **ROUTINE ON-SITE WETLAND DETERMINATION** Site 3 (page 4 of 4)

**Field Investigators:** Plocher, Larimore, Keene      **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B      **Project Name:** FAP 331 (IL 13)  
Wetland Mitigation  
**State:** Illinois      **County:** Saline      **Applicant:** IDOT District 9  
**Site Name:** Shrubland  
**Legal Description:** T.9S., R.5 E., Sect. 18, NE/4 SW/4  
**Location:** western portion of the site

## SPECIES LIST (Continued)

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
* <i>Lonicera japonica</i>	Japanese honeysuckle	herb	FACU	
<i>Ludwigia polycarpa</i>	many fruited seedbox	herb	OBL	5
<i>Lycopus americanus</i>	water horehound	herb	OBL	3
<i>Lycopus virginicus</i>	bugle weed	herb	OBL	5
* <i>Morus alba</i>	white mulberry	shrub	FAC	
<i>Panicum acuminatum</i>	panic grass	herb	FAC	2
<i>Panicum clandestinum</i>	deer tongue grass	herb	FACW	4
<i>Parthenocissus quinquefolia</i>	Virginia creeper	herb	FAC-	2
* <i>Phyla lanceolata</i>	fog fruit	herb	OBL	1
* <i>Phytolacca americana</i>	pokeweed	herb	FAC-	1
<i>Platanus occidentalis</i>	sycamore	shrub	FACW	3
* <i>Poa pratensis</i>	Kentucky bluegrass	herb	FAC-	
* <i>Prunus serotina</i>	black cherry	shrub	FACU	1
<i>Pycnanthemum tenuifolium</i>	mountain mint	herb	FAC	4
<i>Quercus imbricaria</i>	shingle oak	herb	FAC-	2
<i>Quercus palustris</i>	pin oak	herb	FACW	4
<i>Rhus coppalina</i>	winged sumac	herb	UPL	2
* <i>Rosa multiflora</i>	multiflora rose	shrub	FACU	
<i>Rosa setigera</i>	Illinois rose	shrub	FACU+	5
<i>Rubus occidentalis</i>	black raspberry	shrub	UPL	2
<i>Rubus pensylvanicus</i>	common blackberry	shrub	FAC-	2
<i>Rudbeckia hirta</i>	black eyed Susan	sapl/shrub	FACU	2
<i>Scirpus atrovirens</i>	green bulrush	herb	OBL	4
* <i>Solanum carolinense</i>	horse nettle	herb	FACU-	0
* <i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Solidago ulmifolia</i>	elm leaf goldenrod	herb	UPL	5
* <i>Symphoricarpos orbiculatus</i>	coralberry	herb	FACU	1
<i>Teucrium canadense</i>	germander	herb	FACW-	3
* <i>Toxicodendron radicans</i>	poison ivy	herb	FAC+	1
* <i>Tridens flavus</i>	purple top	herb	UPL	1
<i>Ulmus americana</i>	American elm	sapling, shrub, seedl	FACW-	5
<i>Vernonia missurica</i>	Missouri ironweed	herb	FAC+	5
<i>Vitis riparia</i>	riverbank grape	woody vine/herb	FACW-	2

\*\*\*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

\*=non-native or weedy (27.9%), \*\*=annual, but desirable  
 $FQI = R/\sqrt{N} = 155/\sqrt{60} = 20.0$ , mean  $C = R/N = 155/60 = 2.6$

# ROUTINE ON-SITE WETLAND DETERMINATION

Site 4 (page 1 of 4)

**Field Investigators:** Plocher, Larimore, Keene **Date:** 4 September 2001

**Sect. No.:** (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13)

Wetland Mitigation

**State:** Illinois **County:** Saline

**Applicant:** IDOT District 9

**Site Name:** Wet Shrubland

**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4

**Location:** eastern portion of the site

Do normal environmental conditions exist at this site? Yes: X No:  
Has the vegetation, soil, or hydrology been significantly disturbed? Yes: No: X

## VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. <i>Acer rubrum</i>	sapling	FAC
2. <i>Fraxinus pennsylvanica</i>	sapling	FACW
3. <i>Acer rubrum</i>	shrub	FAC
4. <i>Fraxinus pennsylvanica</i>	shrub	FACW

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 100%

**Hydrophytic vegetation:** Yes: X No:

**Rationale:** Greater than 50% of the dominant species are OBL, FACW, FAC+, or FAC.

## SOILS

Series and phase: Bonnie silt loam

On Saline County hydric soils list? Yes: X No:

Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No: Redox depletions: Yes: X No:

Matrix color: 2.5Y 6/2 and 7/1

Other indicators: This soil is found in a level to depressional area on a floodplain.

**Hydric soils:** Yes: X No:

**Rationale:** Bonnie silt loam is a poorly drained soil that meets the requirements of the Natural Resource Conservation Service hydric soil indicator F3, depleted matrix.

## **ROUTINE ON-SITE WETLAND DETERMINATION**

Site 4 (page 2 of 4)

**Field Investigators:** Plocher, Larimore, Keene      **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B      **Project Name:** FAP 331 (IL 13)  
Wetland Mitigation  
**State:** Illinois      **County:** Saline      **Applicant:** IDOT District 9  
**Site Name:** Wet Shrubland  
**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4

**Location:** eastern portion of the site

### **HYDROLOGY**

Inundated? Yes: No: X      Depth of standing water: NA  
Depth to saturated soil: 0.5 m (20 in)  
Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from the surrounding uplands. Evapotranspiration and sheetflow are the major outputs.  
Size of watershed: 2.59 km<sup>2</sup> (1 mi<sup>2</sup>)  
Other field evidence observed: The site is low-lying and level. Wetland drainage patterns and water stained leaves were observed.

**Wetland hydrology:** Yes: X No:

**Rationale:** Field evidence suggests that this site is saturated or inundated for a sufficient duration during the growing season to meet the wetland hydrology criterion.

### **WETLAND DETERMINATION AND RATIONALE:**

**Is the site a wetland?:** Yes: X No:

**Rationale:** Hydrophytic vegetation, hydric soils and wetland hydrology are all present. Therefore the site is a wetland.  
The site is not coded by the NWI.

Determined by: Allen Plocher (vegetation and hydrology)  
Rick Larimore (vegetation and hydrology)  
Dennis Keene (soils and hydrology)  
Illinois Natural History Survey  
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607 East Peabody Drive  
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(217) 333-6292

# ROUTINE ON-SITE WETLAND DETERMINATION

Site 4 (page 3 of 4)

Field Investigators: Plocher, Larimore, Keene Date: 4 September 2001  
 Sect. No.: (7-3, 8-1-1) A, 8-1 B Project Name: FAP 331 (IL 13)  
 Wetland Mitigation  
 State: Illinois County: Saline Applicant: IDOT District 9  
 Site Name: Wet Shrubland  
 Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4  
 Location: eastern portion of site

## SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
<i>*Acalypha rhomboidea</i>	three seeded Mercury	herb	FACU	0
<i>Acer rubrum</i>	red maple	sapling/shrub	FAC	5
<i>Asplenium platyneuron</i>	ebony spleenwort	herb	FACU	4
<i>Betula nigra</i>	river birch	sapling/shrub	FACW	4
<i>**Bidens aristosa</i>	beggar's ticks	herb	FACW	1
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Botrichium dissectum</i>	rattlesnake fern	herb	FAC	6
<i>Campsis radicans</i>	trumpet creeper	herb/woody vine	FAC	2
<i>Carex squarrosa</i>	sedge	herb	OBL	5
<i>Carex vulpinoidea</i>	fox sedge	herb	OBL	3
<i>Celtis occidentalis</i>	hackberry	sapling/shrub	FAC-	3
<i>Cinna arundinacea</i>	stout woodreed	herb	FACW	5
<i>Desmodium paniculatum</i>	panicled tick trefoil	herb	FACU	2
<i>Diospyros virginiana</i>	persimmon	sapling/shrub	FAC	2
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>**Erechtites hieracifolia</i>	fireweed	herb	FACU	2
<i>Eupatorium perfoliatum</i>	boneset	herb	FACW+	4
<i>*Festuca pratensis</i>	English blue grass	herb	FACU-	
<i>Fraxinus pennsylvanica</i>	green ash	sapling/shrub	FACW	2
<i>Geum canadense</i>	white avens	herb	FAC	2
<i>Gleditsia triacanthos</i>	honeylocust	shrub/seedl	FAC	2
<i>Glyceria striata</i>	fowl manna grass	herb	OBL	4
<i>Ilex decidua</i>	swamp holly	shrub	FACW	6

\*\*\*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

(Continued on following page)

# ROUTINE ON-SITE WETLAND DETERMINATION

Site 4 (page 4 of 4)

**Field Investigators:** Plocher, Larimore, Keene **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13)  
**Wetland Mitigation**  
**State:** Illinois **County:** Saline **Applicant:** IDOT District 9  
**Site Name:** Wet Shrubland  
**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4  
**Location:** eastern portion of site

## SPECIES LIST (Continued)

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
<i>Impatiens capensis</i>	jewel weed	herb	FACW	2
<i>Leersia virginica</i>	white grass	herb	FACW	4
<i>Lobelia inflata</i>	Indian tobacco	herb	FACU-	4
* <i>Lonicera japonica</i>	Japanese honeysuckle	herb/woody vine	FACU	
* <i>Lysimachia nummularia</i>	moneywort	herb	FACW+	
<i>Onoclea sensibilis</i>	sensitive fern	herb	FACW	5
<i>Panicum acuminatum</i>	panic grass	herb	FAC	2
<i>Panicum clandestinum</i>	deer tongue grass	herb	FACW	4
<i>Parthenocissus quinquefolia</i>	Virginia creeper	herb/woody vine	FAC-	2
* <i>Phytolacca americana</i>	pokeweed	herb	FAC-	1
<i>Polygonum punctatum</i>	dotted smartweed	herb	OBL	4
<i>Pycnanthemum tenuifolium</i>	mountain mint	herb	FAC	4
<i>Quercus palustris</i>	pin oak	sapling/shrub	FACW	4
* <i>Rosa multiflora</i>	multiflora rose	shrub	FACU	
<i>Rubus occidentalis</i>	black raspberry	shrub	UPL	2
<i>Rubus pensylvanicus</i>	blackberry	shrub	FAC-	2
* <i>Symphoricarpos orbiculatus</i>	coralberry	shrub	FACU	1
* <i>Toxicodendron radicans</i>	poison ivy	herb/woody vine	FAC+	1
<i>Ulmus americana</i>	American elm	sapling/shrub	FACW-	5
<i>Verbena urticifolia</i>	white vervain	herb	FAC+	3
<i>Vernonia missurica</i>	Missouri ironweed	herb	FAC+	5
<i>Vitis riparia</i>	riverbank grape	herb/woody vine	FACW-	2

\*\*\*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

\*=non-native or weedy (17.8%), \*\*=annual, but desirable  
 $FQI = R/\sqrt{N} = 128/\sqrt{41} = 20.0$ , mean  $C = R/N = 128/41 = 3.1$

# ROUTINE ON-SITE WETLAND DETERMINATION

Site 5 (page 1 of 3)

**Field Investigators:** Plocher, Larimore, Keene **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13)  
**Wetland Mitigation**  
**State:** Illinois **County:** Saline **Applicant:** IDOT District 9  
**Site Name:** Wet Meadow/Ditch Bank  
**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4

**Location:** eastern edge of the site

Do normal environmental conditions exist at this site? Yes: X No:  
Has the vegetation, soil, or hydrology been significantly disturbed? Yes: No: X

## VEGETATION

Dominant Plant Species	Stratum	Indicator Status
1. <i>Ludwigia palustris</i>	herb	OBL
2. <i>Phyla lanceolata</i>	herb	OBL

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 100%

**Hydrophytic vegetation:** Yes: X No:

**Rationale:** Greater than 50% of the dominant species are OBL, FACW, FAC+, or FAC.

## SOILS

Series and phase: Bonnie silt loam

On Saline County hydric soils list?

Yes: X No:

Is the soil a histosol? Yes: No: X

Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No:

Redox depletions: Yes: X No:

Matrix color: 2.5Y 6/2 and 7/1

Other indicators: This soil is found in a level to depressional area on a floodplain.

**Hydric soils:** Yes: X No:

**Rationale:** Bonnie silt loam is a poorly drained soil that meets the requirements of the Natural Resource Conservation Service hydric soil indicator F3, depleted matrix.

## **ROUTINE ON-SITE WETLAND DETERMINATION**

Site 4 (page 2 of 3)

**Field Investigators:** Plocher, Larimore, Keene      **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B      **Project Name:** FAP 331 (IL 13)  
Wetland Mitigation  
**State:** Illinois      **County:** Saline      **Applicant:** IDOT District 9  
**Site Name:** Wet Meadow/Ditch Bank  
**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4

**Location:** eastern edge of the site

### **HYDROLOGY**

Inundated? Yes: No: X

Depth of standing water: NA

Depth to saturated soil: at surface

Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from the surrounding uplands and ditch overflow. Evapotranspiration and sheetflow are the major outputs.

Size of watershed: 2.59 km<sup>2</sup> (1 mi<sup>2</sup>)

Other field evidence observed: The site is level to depressional. Wetland drainage patterns and water stained leaves were observed.

**Wetland hydrology:** Yes: X No:

**Rationale:** Field evidence suggests that this site is saturated or inundated for a sufficient duration during the growing season to meet the wetland hydrology criterion.

### **WETLAND DETERMINATION AND RATIONALE:**

**Is the site a wetland?:** Yes: X No:

**Rationale:** Hydrophytic vegetation, hydric soils and wetland hydrology are all present. Therefore the site is a wetland.  
The site is not coded by the NWI.

Determined by: Allen Plocher (vegetation and hydrology)  
Rick Larimore (vegetation and hydrology)  
Dennis Keene (soils and hydrology)  
Illinois Natural History Survey  
Center for Wildlife Ecology  
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# ROUTINE ON-SITE WETLAND DETERMINATION

Site 4 (page 3 of 3)

**Field Investigators:** Plocher, Larimore, Keene **Date:** 4 September 2001  
**Sect. No.:** (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13)  
**Wetland Mitigation**  
**State:** Illinois **County:** Saline **Applicant:** IDOT District 9  
**Site Name:** Wet Meadow/Ditch Bank  
**Legal Description:** T.9S., R.5 E., Sect. 18, NW/4 SE/4  
**Location:** eastern edge of site

## SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI***
<i>Ammannia coccinea</i>	ammannia	herb	OBL	5
<i>Aster ericoides</i>	heath aster	herb	FACU-	4
<i>Betula nigra</i>	river birch	seedl	FACW	4
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Boltonia diffusa</i>	false aster	herb	FACW	4
<i>Carex muskingumensis</i>	sedge	herb	OBL	6
<i>Cyperus pseudovegatus</i>	flat sedge	herb	FACW	5
* <i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eleocharis obtusa</i>	spikerush	herb	OBL	2
<i>Eryngium prostratum</i>	eryngo	herb	OBL	5
<i>Eupatorium perfoliatum</i>	boneset	herb	FACW+	4
<i>Helenium autumnale</i>	sneezeweed	herb	FACW+	3
<i>Juncus acuminatus</i>	knotty leaved rush	herb	OBL	4
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Lobelia cardinalis</i>	cardinal flower	herb	OBL	6
<i>Ludwigia palustris</i>	marsh seedbox	herb	OBL	4
<i>Lycopus americanus</i>	water horehound	herb	OBL	3
<i>Lycopus virginicus</i>	bugleweed	herb	OBL	5
* <i>Lysimachia nummularia</i>	moneywort	herb	FACW+	
<i>Mimulus alatus</i>	winged monkeyflower	herb	OBL	6
<i>Panicum rigidulum</i>	Munro grass	herb	FACW	6
<i>Paspalum laeve</i>	smooth bead grass	herb	FACW-	2
<i>Penthorum sedoides</i>	ditch stonecrop	herb	OBL	2
* <i>Phragmites communis</i>	giant reed	herb	FACW+	1
* <i>Phyla lanceolata</i>	fog fruit	herb	OBL	1
<i>Pluchea camphorata</i>	camphorweed	herb	FACW	8
<i>Populus deltoides</i>	cottonwood	seedl	FAC+	2
* <i>Prunella vulgaris elongata</i>	self heal	herb	FAC	1
<i>Sagittaria latifolia</i>	arrowhead	herb	OBL	4
<i>Salix nigra</i>	black willow	seedl	OBL	3
<i>Scirpus atrovirens</i>	green bulrush	herb	OBL	4
* <i>Sida spinosa</i>	prickly sida	herb	FACU	

\*\*\*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

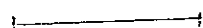
\*=non-native or weedy (18.8%), \*\*=annual, but desirable  
 $FQI = R/\sqrt{N} = 110/\sqrt{30} = 20.1$ , mean  $C = R/N = 110/30 = 3.7$

FAP 331 (IL 13)  
Wetland Mitigation Monitoring - 2001  
Saline Co.

Legend

Scale

1"=200'



Monitoring Well or Stage Gauge

Photo Station

- A. Emergent Wetland
- B. Wet Meadow
- C. Floodplain Forest
- D. Mesic Forest
- E. Wet Shrubland
- F. Shrubland
- G. Ditch
- H. Grass Strip

